# gnuplot Plotting from the shell

## CONCEPTS

Settings stick until changed: set options stay active for later plots. Use unset <option> or reset to clear them.

**Data / function** file or expression
↓ `set ...`
**Settings** terminal, labels, ranges
↓ `plot`
**Plot** using, with, title
↓ `set output`
**Output** window, png, svg, pdf

Always set terminal first, then output, then plot. Call unset output at the end so the file is flushed and closed.

## RUNNING

**`gnuplot`**
Start interactive prompt

**`gnuplot <script.gp>`**
Run a script file

**`gnuplot -persist -e "plot sin(x)"`**
Plot and keep the window

**`gnuplot -e "<cmds>" <script.gp>`**
Run a command, then a script

**`help <topic>`**
Built-in help

## PLOTTING

**`plot <expr>`**
Plot a function of x

**`plot '<file>'`**
Plot a data file (column 1 vs 2)

**`plot '<file>' using 1:3`**
Pick columns for x and y

**`plot '<f1>', '<f2>'`**
Several datasets in one plot

**`plot <a>, <b> title '<name>'`**
Name a curve in the legend

## PLOTTING (cont.)

**`plot [<x0>:<x1>] [<y0>:<y1>] <expr>`**
Set ranges for this plot

## STYLES

**`with lines`**
Join points with lines

## AXES AND LABELS

**`set title '<text>'`**
Plot title

**`set xlabel '<text>'`**
X axis label

**`set ylabel '<text>'`**
Y axis label

**`set xrange [<min>:<max>]`**
Fix the x range

**`set datafile separator ','`**
Read CSV

## OUTPUT

**`set terminal png size 800,600`**
Raster image

**`set output '<file>'`**
Write output to a file

## FIT AND STATS

**`f(x) = a*x + b`**
Define a function

**`fit f(x) '<file>' using 1:2 via a,b`**
Least-squares fit

## MULTIPLOT AND SCRIPTING

**`set multiplot layout 2,2`**
Grid of plots

**`unset multiplot`**
Finish the multiplot